

ART 34 AMDT

CLAIMS

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1. A composite material comprising colloidal silica-bonded alkaline earth silicate fibres in which any bonding agents or fillers comprise low amounts of aluminium so that the composite material comprises less than 1% by weight aluminium expressed as Al_2O_3 . *112*

10 2. A composite material as claimed in claim 1 in which composite material comprises less than 0.5% by weight by weight of aluminium expressed as Al_2O_3 .

15 3. A composite material as claimed in claim 2 in which the composite material comprises less than 0.1% by weight by weight of aluminium expressed as Al_2O_3 .

4. A composite material as claimed in claim 1 in which the composite material is essentially free of aluminium. *what do you mean by this & how free!!*
object can be residue than!!

20 5. A composite material as claimed in *any preceding claim* and comprising less than 1% by weight sodium expressed as Na_2O . *Claim 1*

6. A composite material as claimed in claim 5 and comprising less than 0.5% by weight sodium expressed as Na_2O .

25 7. A composite material as claimed in claim 6 and comprising less than 0.1% by weight sodium expressed as Na_2O .

8. A composite material as claimed in *any preceding claim* and in which the composite material is *essentially free of sodium*. *Claim 1*

30 9. A composite material as claimed in *any preceding claim* and comprising less than 0.5% by weight boron expressed as B_2O_3 . *Claim 1*

10. A composite material as claimed in claim 9 and comprising less than 0.1% by weight boron expressed as B_2O_3 .

Q 11. A composite material as claimed in ^{Claim 1} ~~any preceding claim~~ in which the alkaline earth silicate fibre is itself capable of use without excessive shrinkage at temperatures in excess of 1200°C.

Q 12. A composite material as claimed in ^{Claim 1} ~~any preceding claim~~ in which the material is obtainable by vacuum forming from a slurry containing the following ingredients (in weight %):-

Alkaline earth metal silicate fibre	70-85%	remove parentheses
Colloidal silica (30% SiO_2 by weight)	3-25%	
Organic binder	1-6%	
Filler	11-20%	

13. A composite material as claimed in claim 12 comprising:-

Alkaline earth metal silicate fibre	70-90%
Colloidal silica (30% SiO_2 by weight)	1-10%
Organic binder	1-6%
Filler	11-20%

14. A composite material as claimed in claim 13 comprising:-

Alkaline earth metal silicate fibre	77.3-87.2%
Colloidal silica (30% SiO_2 by weight)	1.2-8.2%
Organic binder	3.3-4.7%
Filler	12.8-18%

9 15. A composite material as claimed in ^{Claim 1} ~~any of claims 1 to 11~~ in which the material is a paper comprising:-

Alkaline earth metal silicate fibre	90-95%
Organic binder	5-10%
Organic flocculants	<1%

16. A composite material as claimed in claim 15 in which the organic binder is an acrylic latex.

17. A composite material as claimed in any of claims 1 to 11 in which the material is a material obtainable by vacuum forming from a slurry comprising the ingredients:-

Alkaline earth silicate fibre	60 parts by weight
Colloidal silica (30% by weight SiO_2)	12 - 14 parts by weight
<u>Starch</u>	2.5 parts by weight

and in which the colloidal silica has a pH of less than 8.

What is
total
parts by wt ??

18. A composite material comprising 4-12% by weight colloidal silica, 3-6.5% starch, balance to 100% alkaline earth silicate fibre.

19. A composite material as claimed in claim 18 and comprising 4-9% by weight colloidal silica, 3.5-5% starch, balance to 100% alkaline earth silicate fibre.

15 20. A composite material as claimed in claim 18 comprising about 6% colloidal silica.

21. A composite material as claimed in any of claims 1 to 11 in which the material is a material obtainable by vacuum forming from the ingredients:-

"White water" component	50-80% by volume of 30% <u>solids</u> colloidal silica with 20-50% by volume <u>mains water</u> ?
Alkaline earth metal silicate fibre	0.5-4% by weight of solids to <u>white water</u> component

20 and in which the colloidal silica has a pH of less than 8.

22. A composite material as claimed in ~~any of claims 1 to 11~~ in which the material is a material obtainable by vacuum forming from the ingredients:-

"White water" component 90-100% by volume of 30% solids colloidal silica with 10-0% by volume mains water
Alkaline earth metal silicate fibre component 2-3% by weight of solids to white water

and in which the colloidal silica has a pH of less than 8.

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23. A composite material as claimed in claim 21 or ~~claim 22~~ and which comprises 15-30% by weight colloidal silica, balance fibre.

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24. A composite material as claimed in claim 17 in which the fibre is present in amounts comprising 0.5-5% by weight of the water in the slurry.

25. A composite material as claimed in ~~any of claims 1 to 11~~ in which the material is a material obtainable by vacuum forming from the ingredients

"White water" component 65-100% by volume of 40% solids ~~low sodium~~ content colloidal silica having a pH of less than 10 with 35%-0% by volume ~~mains~~ water
Alkaline earth metal silicate fibres component 2-3wt% by weight of solids to white water

Add A1

112